

CLAIMS

What is claimed is:

1. A method of forming a differential assembly comprising the steps of:
 - a) providing a ring gear; and
 - b) casting a differential case around a portion of the ring gear to form the differential assembly.
2. The method according to claim 1, wherein step a) includes forging the ring gear.
3. The method according to claim 2, wherein step a) includes precision forging the ring gear to a near-net-shape.
4. The method according to claim 1, wherein the ring gear is steel.
5. The method according to claim 1, wherein the differential case is ductile iron.
6. The method according to claim 1, wherein the portion includes projections for an improved connection between the ring gear and the differential case.
7. The method according to claim 1, further including the step of:
 - c) machining differential case features.
8. The method according to claim 7, further including the step of:
 - d) machining gear teeth on the ring gear.

9. The method according to claim 8, further including the step of:
 - e) induction hardening the gear teeth.
10. A differential assembly comprising:
a ring gear having a plurality of teeth and a mounting portion spaced from said teeth;
and
a differential case including a cast portion surrounding said mounting portion securing said ring gear to said differential case.
11. The assembly according to claim 10, wherein said ring is steel.
12. The assembly according to claim 11, wherein said steel is forged.
13. The assembly according to claim 10, wherein said differential case is ductile iron.
14. The assembly according to claim 10, wherein said mounting portion includes projections for an improved connection between said ring gear and said differential case.
15. The assembly according to claim 14, wherein said cast portion is a flange.